Complexes of Block Ionomers with Oppositely Charged Surfactants

Alexander Kabanov, UNMC, DMR-0071682

Research:

2004: Block ionomer gels from cross-linked poly(ethylene oxide) (PEO) and poly(sodium acrylate acid) (PAA) are loaded with proteins of opposite charge. The resulting materials do not completely collapse and remain partially swollen due to the effect of PEO chains – a striking contrast with the PAA homopolymer gels. The protein release can be triggered by adding divalent counterions, which displace protein globules. Such materials can be used in variety of biomedical applications (*see next slide*).

Education and Training:

In 2004 two Ph.D. students (S. Solomatin, K. Oh) and two summer undergraduate students (D. Moreland, 1st year, Creighton U and A. Prakash, 4 year, UN Omaha) were trained. A visiting scientist (E. Lysenko) and graduate student (P. Chelushkin) from Moscow State University have participated in this project.

Overall the support of this grant has triggered material research in the Nebraska Medical Center and establishment of Nanomedicine Center with four faculty in addition to the PI using the materials developed under this project in their research.

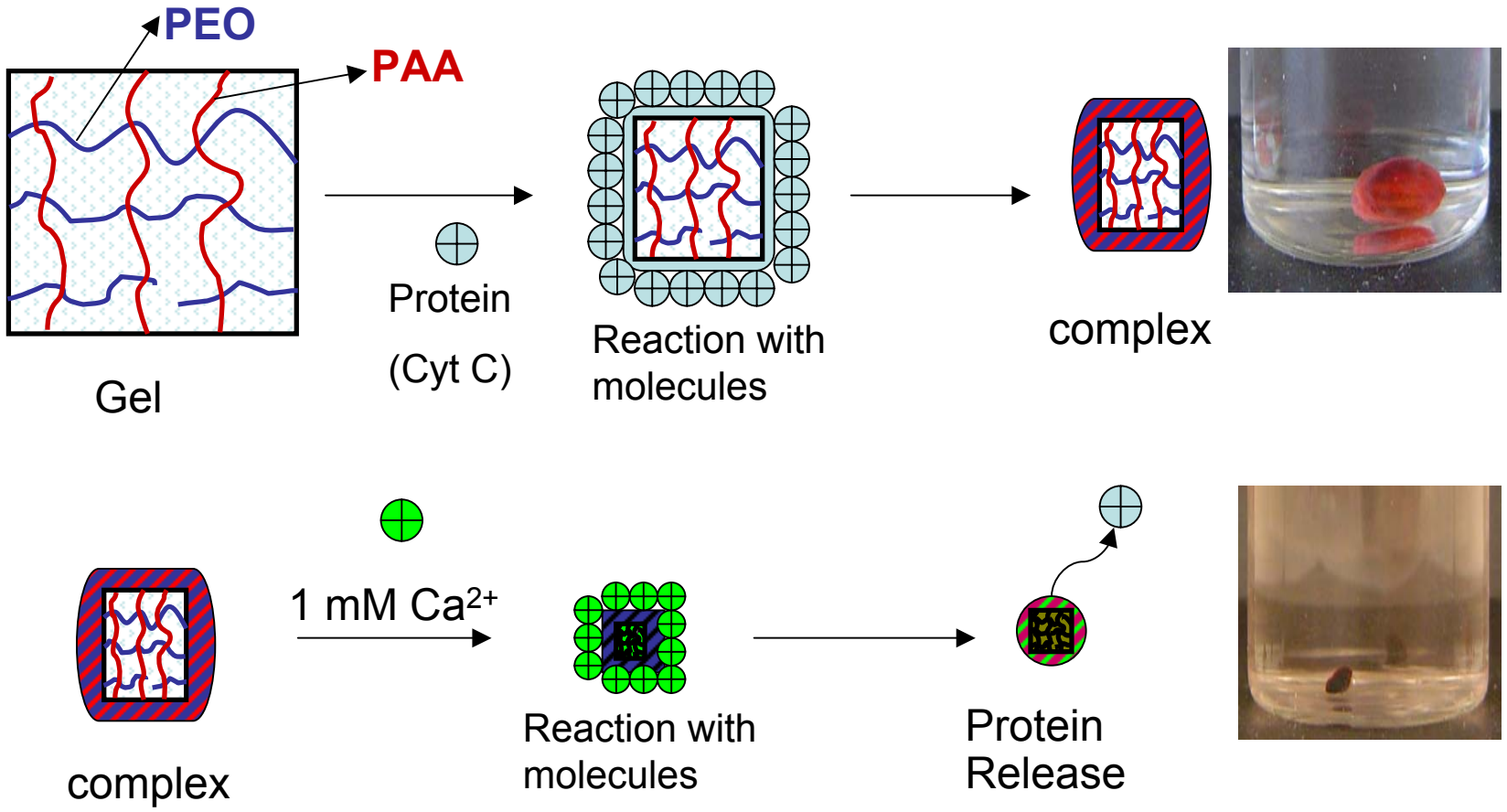
Outreach:

2^{d} Conference on Nanomedicine and Drug Delivery organized in Brooklyn, NY (http://nanomedicine.poly.edu/)

Meetings on going with leadership of Kiewit Company and UN Foundation to enhance nanotechnology research in Nebraska

COBRE grant for Nebraska Center for Nanomedicine submitted.

Block Ionomer Gels: Protein Loading and Release



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